National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ATL03FA008	Aircraft Registration Number: N76U
Occurrence Date: 10/23/2002	Most Critical Injury: Fatal
Occurrence Type: Accident	Investigated By: NTSB

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone	
Spanish Fort	AL	36527	1945	CDT	

Airport Proximity: Off Airport/Airstrip	Distance From Landing Facility: 8	Direction From Airport: 31

Aircraft Information Summary

Aircraft Manufacturer	Model/Series	Type of Aircraft
Cessna	208B	Airplane

Sightseeing Flight: No Air Medical Transport Flight: No

Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

HISTORY OF FLIGHT

On October 23, 2002, at 1945, central daylight time, a Cessna 208B, N76U, call sign Night Ship 282, registered to Atlantic Aero, Inc., and operated by Mid Atlantic Freight, Inc. collided in-flight with an unknown object at 3,000 feet MSL and descended uncontrolled into swampy water in the Big Bateau Bay in Spanish Fort, Alabama, shortly after takeoff from the Mobile Downtown Airport, in Mobile, Alabama. The cargo flight was operated under the provisions of Title 14 CFR Part 135, and instrument flight rules. Instrument meteorological conditions prevailed and an IFR flight plan was filed. The commercial pilot sustained fatal injuries and the airplane was destroyed. The flight originated from the Mobile Downtown Airport, in Mobile, Alabama on October 23, 2002 at 1940.

According to Air Traffic Control (ATC) transcripts between the Mobile ATCT Approach Control East Radar and Night ship 282, at 19:42:21, Night Ship 282 contacted ATC and stated "Mobile departure night ship ah two eighty two is with you at one thousand going to two thousand." At 19:42:25, ATC responded, "night ship two eighty two mobile departure radar contact maintain three thousand turn right join victor four fifty four please." 19:42:30 Night Ship 282 "roger right turn four fifty four." 19:44:25, ATC "night ship two eighty two traffic at twelve o'clock of you and seven miles south bound heavy DC ten at four thousand." 19:44:29 Night Ship 282 "night ship two is looking I'm IMC." 19:44:32 ATC "roger." 19:45:34 ATC "night ship two eighty two your still IMC but that DC Ten is one o'clock and two miles south bound at four thousand." 19:45:41 Night Ship 282 "roger I got him above me right now." 19:45:42 ATC "roger." 19:45:57 Night Ship 282 "I needed to deviate, I needed to deviate, I needed to deviate, I needed" end of transmission. The wreckage was located in a swamp, 7.7 nautical miles northeast of the departure airport scattered randomly over an area of about 200 yards. The only radar data available was a "snap shot" taken from the equipment at Mobile Regional Departure Control and NTAP data from Atlanta Center. The data shows that night ship 282, was at 3000 feet, and the DC-10 was at 4000 feet and two airplanes never crossed paths. According to the snap shot the DC-10 was to the left of Night Ship 282. There were no known witnesses to the accident.

PERSONNEL INFORMATION

A review of information on file with the FAA Airman's Certification Division, Oklahoma City, Oklahoma, revealed the pilot was certificated as an Airline Transport Pilot for airplane single engine land, and was certificated as a Commercial pilot for airplane multiengine land, Rotorcraft-Helicopter, and Instrument helicopter. A review of records on file with the FAA Aero Medical Records revealed the pilot held a second-class medical certificate issued on May 14, 2002, with restrictions that he must wear lenses for distant vision and possess glasses for near vision. The pilot reported on his application for the medical certificate that he had accumulated 4,000 total flight hours. The pilot's logbook was not located. The pilot had worked for Mid-Atlantic Freight for several months and was reportedly familiar with this route. He was previously employed

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB ID: ATL03FA008

Occurrence Date: 10/23/2002

Occurrence Type: Accident

Narrative (Continued)

by Pan Am Flight Academy in Memphis, Tennessee, where he instructed in the Cessna 208. He was also a veteran pilot of the New York City Police Department. His last Part 135 check ride was on July 13, 2002.

AIRCRAFT INFORMATION

The blue and gray on white Cargomaster Cessna 208B. S/N 208B0775, N76U, was originally sold on September 30, 1999 to 1st Source Bank, South Bend, Indiana. The current owner subsequently purchased then registered the airplane on January 27, 2000. At the time of the accident, Mid-Atlantic Freight, Inc., carrying cargo for DHL under contract, was operating the airplane. The operator reported that the airplane was carrying approximately 420 pounds of cargo on the accident flight. A review of company maintenance records revealed that the airplane was maintained on a FAA Approved Airworthiness Inspection Program (AAIP). The airplanes last periodic inspection was conducted on October 18, 2002, and at that time had accumulated 3,990.5 hours total time. At the time of the accident the airplane had 4,001.8 hours total time.

METEOROLOGICAL INFORMATION

The nearest weather reporting facility at the time of the accident was Mobile Downtown Airport in Mobile, Alabama. The 1856 surface weather observation was: Lowest cloud condition scattered 900 ft, Overcast 1300 ft, visibility 7 statute miles, temperature 20-degrees Celsius, dew point 19-degrees Celsius, wind 050-degrees at 11 knots, and altimeter 30.06 Hg. Instrument meteorological conditions prevailed at the time of the accident.

WRECKAGE EXAMINATION/DOCUMENTATION

The wreckage was located in Big Bateau Bay, in the Mobile-Tensaw Delta, which lies between Mobile and Spanish Fort, Alabama. The swamp/marsh area had water that varied in depth from approximately 4 inches up to 3 feet, depending on the tide. Locals referred to the bottom of the swamp as "puff mud" which was very soft and practically impossible to stand on. This puff mud was between 8 and 10 feet deep. Navigating the site and recovery of the wreckage required the use of airboats; a barge was used to transport the large pieces of wreckage to shore.

The dispersion of the wreckage was oriented north/south. The southern most section was the engine. Approximately 100 feet to the east was the left wing lift strut and section of the left wing spar. Three hundred and seventeen feet north was the largest piece of airframe (main landing gear through the empennage). Another 105 feet north of that was an area that contained the firewall, engine mount and instrument panel sections.

On site examination began on October 24, 2002. The examination continued over the course of five days, while recovering all wreckage that was found. The recovered wreckage was then transported to Atlanta Air Recovery, Griffin, Georgia and examined again on November 19, 2002 through November 21, 2002. The engine was broken into two sections and separated from the airframe. Red transfer marks were observed on many pieces of the airframe, concentrated on the lower airframe skin forward of the main landing gear and the nose landing gear area. The left side of the cargo pod was impact damaged. There was no evidence of fire, and the origin of the red transfer marks has not been identified.

Examination of the fuselage found it fragmented forward of the rear fuselage cargo door area. The aft cargo area, tailcone and empennage were easily identifiable and remained as one piece, but damaged. The remainder of the fuselage was randomly spread across the southern half of the site. The empennage surfaces, although damaged, remained partially attached to the tailcone structure. The left horizontal stabilizer and elevator were relatively complete but bent down 90-degrees mid-span. The right horizontal stabilizer had chordwise compression along the outer 1/3 of the span (it was cut in half for transport post-recovery). The right elevator was separated into three

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB ID: ATL03FA008
Occurrence Date: 10/23/2002
Occurrence Type: Accident

Narrative (Continued)

sections. The vertical stabilizer was crushed chordwise; on site it was twisted clockwise and bent down nearly 180-degrees. The lower half of the rudder remained attached to the vertical stabilizer.

Both wings were separated into multiple pieces. Loose portions of each wing control surface were observed. Control cable continuity was not established for any flight control surface due to the condition of the wreckage.

Examination of the right main landing gear leg found it rotated aft approximately 90-degrees; the wheel assembly was separated from the leg. The nose landing gear oleo piston was bent aft and turned to the right approximately 60-degrees as viewed from the pilot seat. The fork was separated from the strut. Along the forward, top, right side of the fork. Inside the oleo attachment area of the fork, gouges made by the bolt that attaches the oleo to the fork, were observed and confirmed that the fork had turned to the right, relative to the oleo piston.

As the wreckage was being recovered, various parts were observed with localized red transfer marks. The marks were small and had a definite direction of transfer; however, the direction varied. During wreckage review, a concentrated effort was made to determine the location (on the airframe) of pieces of wreckage with transfer marks. The following is a list of some identified areas:

Nose landing gear wheel (inside the tire)
Top of the nose landing gear fork, aft side
Top nose landing gear trunnion, forward side
Outer surface of the lower left side cowling near upper aft corner
Instrument panel support
Lower aft side of cockpit cargo barrier
Multiple places along the fuselage belly from Fuselage Station (FS) 135 to FS 269, concentrated below the crew seats, at the left cockpit door threshold, and main landing gear attachment area.
Left lift strut fuselage fairing
Left lift strut, aft side 2.5 feet outboard of the fuselage
Bottom trailing edge skin wing near Wing Station (WS) 75 (side unconfirmed)
Left wing dry bay panel (bottom of wing root between forward and aft spars)
Adjacent to right wing fuel filler
Top of right elevator adjacent to outboard hinge

There were many additional pieces exhibiting the same type of transfer marks; however, the small size of many prevented confirming their location on the airframe. There was a small piece of what appeared to be black anodized aluminum, which was found embedded in the left wing dry bay panel at the wing root between the spars. The origin of the metal remains unknown; and is not believed to have come from the accident airplane.

The investigative team as a group categorized major damage by either aerodynamic or impact related. The following list contained some of the observations made by the team:

Major Aerodynamic Damage:

Right lift strut twisted counter-clockwise and bent aft 90-degrees 18-inches outboard of its attachment point.
Right wing main spar upper cap bent and twisted in several locations with no impact related marks observed.
Left upper wing skin between spars torn in several sections with no contact damage observed.
Aft portion of cargo pod torn away from fuselage along the right side.

Major Impact Damage

Right main landing gear wheel separated from the leg and rotated aft 90-degrees.

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB ID: ATL03FA008
Occurrence Date: 10/23/2002
Occurrence Type: Accident

Narrative (Continued)

Damage mid-span, on the aft side of the left lift strut.
Engine broken into two main sections.
Aft portion of cargo pod impacted damage along the left side.
Nose landing gear oleo piston bent aft and turned to the left 60-degrees.
Damage to nose landing gear wheel assembly.

The forward part of the fuselage was fragmented, to include the cockpit. The cargo barrier was also separated from the airplane structure and damaged. The instrument panel was in multiple sections and some were entangled with surrounding structure. No detailed examination of any instrument or related system was performed due to damage. The odor of Jet A was present at the mishap site, as well as a petroleum "slick" on the surface of the water.

Examination of the engine a Pratt & Whitney Canada PT6A-114A, S/N PC0710, found severe impact damage. Only the power section and part of the gas generator was recovered. The constant speed unit, fuel control unit and fuel pump were not recovered. The compressor turbine stators were found bent in the direction of rotor rotation. The first and second stage compressor rotors were not recovered. The engine power section including the reduction gearbox and gas generator was recovered intact. The compressor intake case and remaining engine including the accessory gearbox and accessories were not recovered. The engine displayed impact damage at the 4 o'clock position on the exhaust case in the area of the flange. The propeller shaft was intact and seized. The exhaust duct displayed severe impact deformation with a significant portion detached. The gas generator case displayed evidence of structural compression and buckling. The compressor section was exposed as recovered. The 1st and 2nd stage compressor rotors were not recovered. The 3rd stage compressor rotor was missing all blades except one which was found lodged in the 2nd stage stator. The impeller was intact with nicks on the leading edge. The 1st and 2nd stage compressor stators were intact and found bent in the direction of rotor rotation. the 3rd stage stator was found intact with minor damage to the leading edge. The 2nd and 3rd stage spacers were found intact. The 1st stage spacer was missing. The tie rods were fractured in the region of the 1st stage rotor. The compressor inlet case and remaining engine was detached at the flange attachment to the gas generator case. The compressor shroud displayed circumferential rubbing due to compressor rotor blades making radial contact. Examination of the power turbine as viewed through the exhaust duct showed several blades fractured near the tip. The blades remained attached to the power turbine disk. Examination of the engine revealed that the damage noted was consistent with the engine making power at time of the accident.

On October 24, 2002, a walk-around examination of the FedEx DC-10, which was on approach to Mobile Downtown Airport at the time of the accident, found no damage to the exterior of the aircraft. No further examinations of the airplane were conducted.

MEDICAL/PATHOLOGICAL INFORMATION

Dr. Leszek Chrostowski, State Medical Examiner, Alabama Department of Forensic Sciences, conducted a postmortem examination of the pilot on October 24, 2002. The cause of death was "Multiple blunt force injuries." The Forensic Toxicology Research Section, Federal Aviation Administration, Oklahoma City, Oklahoma performed postmortem toxicology of specimens from the pilot. Carbon Monoxide and Cyanide Analysis was not performed. Neither ethanol or drugs were detected in the lung or muscle tissue submitted for examination.

ADDITIONAL INFORMATION

Two pieces of airplane skin, a piece of cargo bag material a piece of unmanned aerial vehicle, and a piece of fabric were sent to Wright Patterson Air Force Base for analysis using microscope-based Fourier Transform Infrared Spectroscopy (FTIR). The infrared spectra were taken in transmission mode with samples mounted on a sodium chloride crystal plate, using a Bio-Rad Excalibur Series instrument. The spectra obtained were matched to spectra from several different databases to

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID:	ATL03FA008
Occurrence Date:	10/23/2002
Occurrence Type:	Accident

Narrative (Continued)

identify the type of polymer.

Piece A, was red material from bare metal the Spectra obtained for the red deposit were found to be most similar to references for polyester materials based on tere- and iso- phthalates. The spectra also suggested the possible presence of inorganic silicate compounds. Piece B, Red material from surface of white coating, the spectra obtained for the red deposit were very similar to those for the red material from piece A. The spectra suggested a composition of a phthalate-based polyester with some inorganic silicate material. Piece A, White coating, the spectra obtained for a reference sample of the white coating most closely matched references for polyurethane-based materials. Piece A, Green primer, the spectra were obtained for a reference sample of the green layer between the white coating and metal substrate. Obtained spectra most closely matched references for epoxy materials with some inorganic silicate fillers. Cargo bag, the spectra obtained for the red plastic most closely matched references for polypropylene materials. The red pitot cover, spectra obtained for this red material most closely matched references for poly vinyl chloride materials with an ester-based plasticizer. The clear colorless topcoat from the unmanned aerial vehicle, the spectra indicated a composition of a modified acrylate type material (possibly a styrene based modifier). and finally, the red coating layer from the unmanned aerial vehicle, spectra were most similar to some references for modified polyurethane type materials.

The main result from the investigation is that the material in the red streaks on the skin of the accident airplane was significantly different from the other materials that were examined for comparison: the red cargo bag, the red pitot cover, the paint on the airplane and the piece from the unmanned aerial vehicle. The spectra that were obtained at Wright Patterson Air Force base are effectively identical to those obtained by the laboratory hired by the insurance company, indicating that the red streaks on all the pieces of the airplane are the same material. Without a specific candidate material for comparison, it is not possible to identify the source of the red streaks.

According to the FAA, the equipment used to record the radar data for this area was inoperative, and had been inoperable for several months. Therefore, there was no recorded data available to the investigation for review. The only data was a "snap shot" of the tracks of the Cargomaster (C208) and DC-10 retrieved from Mobile Regional Departure Control equipment. That information showed the Cargomaster and DC-10 never crossed paths before the Cargomaster's radar return went into coast mode at 19:46:00. It also showed that the DC-10 was to the Cargomaster pilot's left, not straight ahead and, later, to the right, as called out by the controller.

The wreckage of N76U, was released to a representative of USAIG Insurance Group on February 12, 2004.

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ATL03FA008

Occurrence Date: 10/23/2002

Occurrence Type: Accident

Landing Facility/Approach Information

Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
Brookley Downtown Airport	BFM	26 Ft. MSL	32	9618	150

Runway Surface Type: Asphalt

Runway Surface Condition: Wet

Type Instrument Approach: NONE

VFR Approach/Landing: None

Aircraft Information

Aircraft Manufacturer	Model/Series	Serial Number
Cessna	208B	208B0775

Airworthiness Certificate(s): Normal

Landing Gear Type: Tricycle

Homebuilt Aircraft?	Number of Seats:	Certified Max Gross Wt.	Number of Engines:
No	2	8785 LBS	1

Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:
Turbo Prop	Pratt & Whitney Canada	PT-6-114A	675 HP

- Aircraft Inspection Information

Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time
AAIP	10/18/2002	11 Hours	4001 Hours

- Emergency Locator Transmitter (ELT) Information

ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?
Yes	No	No

Owner/Operator Information

Registered Aircraft Owner	Street Address	City	State	Zip Code
Atlantic Aero Inc	6423 Airport Parkway	Greensboro	NC	27425

Operator of Aircraft	Street Address	City	State	Zip Code
Mid Atlantic Freight Inc.	PO Box 35408	Greensboro	NC	27425

Operator Does Business As:

Operator Designator Code: MDC

- Type of U.S. Certificate(s) Held:

Air Carrier Operating Certificate(s): Cargo; On-demand Air Taxi

Operating Certificate:

Operator Certificate:

Regulation Flight Conducted Under: Part 135: Air Taxi & Commuter

Type of Flight Operation Conducted:

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ATL03FA008

Occurrence Date: 10/23/2002

Occurrence Type: Accident

First Pilot Information

Name	City	State	Date of Birth	Age
On File	On File	On File	On File	54

Sex: M | Seat Occupied: Left | Principal Profession: Civilian Pilot | Certificate Number: On File

Certificate(s): Airline Transport; Commercial

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: Helicopter

Instrument Rating(s): Airplane; Helicopter

Instructor Rating(s): Airplane Single-engine

Type Rating/Endorsement for Accident/Incident Aircraft? No | Current Biennial Flight Review? 07/01/2002

Medical Cert.: Class 2 | Medical Cert. Status: Valid Medical--w/ waivers/lim. | Date of Last Medical Exam: 05/14/2002

- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Night	Instrument Actual	Instrument Simulated	Rotorcraft	Glider	Lighter Than Air
Total Time	4584	838			638	686				
Pilot In Command(PIC)	3384	284								
Instructor										
Last 90 Days		245								
Last 30 Days		75								
Last 24 Hours		5								

Seatbelt Used? Yes | Shoulder Harness Used? Yes | Toxicology Performed? Yes | Second Pilot? No

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point	State	Airport Identifier	Departure Time	Time Zone
Same as Accident/Incident Location		BFM	1935	CDT

Destination	State	Airport Identifier
Montgomery	AL	MGM

Type of Clearance: IFR

Type of Airspace: Class C

Weather Information

Source of Briefing: Flight Service Station

Method of Briefing: Telephone

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ATL03FA008

Occurrence Date: 10/23/2002

Occurrence Type: Accident

Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
BFM	1856	CDT	26 Ft. MSL	8 NM	31 Deg. Mag.

Sky/Lowest Cloud Condition: Scattered 900 Ft. AGL

Condition of Light: Night/Dark

Lowest Ceiling: Overcast 1300 Ft. AGL

Visibility: 7 SM

Altimeter: 30.06 "Hg

Temperature: 20 °C

Dew Point: 19 °C

Wind Direction: 50

Density Altitude: 497 Ft.

Wind Speed: 11

Gusts:

Weather Condtions at Accident Site: Instrument Conditions

Visibility (RVR): Ft.

Visibility (RVV) SM

Intensity of Precipitation:

Restrictions to Visibility: None

Type of Precipitation: None

Accident Information

Aircraft Damage:

Aircraft Fire:

Aircraft Explosion

Classification:

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -	1				1
Other Ground					
- GRAND TOTAL -	1				1

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB ID: ATL03FA008

Occurrence Date: 10/23/2002

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

Butch Wilson

Additional Persons Participating in This Accident/Incident Investigation:

Emil A Cirone
Principal Operations Inspector
FAA Birmingham FSDO
1500 Urban Center Drive Suite 250
Vestavia Hills, AL 35242

Hardy R Douglas
Lead Air Safety Investigator
Pratt & Whitney Canada
1000 Marie-Victorin
Quebec, J4G 1A1

Todd Sigler
Air Safety Investigator
Cessna Aircraft Company
One Cessna Boulevard
Wichita, KS 67215

Edwar L Baxter
Vice President Caravan Operations
Mid-Atlantic Freight, Inc.
6423 Byran Boulevard
Greensboro, NC 27425

Patrick L McCormick
Air Safety Investigator
National Air Traffic Controllers Association
5194 Huntington Cir. NE
St. Petersburg, FL 33703

Charles Gray
President
Aviation Maintenance Consultants Inc.,/ Mid Atlant
103 Dove Cove Lane
Westminster, SC 29693